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PATENT
Atty. Dkt. No. APPM/003778/PPC/CMP/CKIM

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: Chen, et al.	§	
	§	Group Art Unit: 3723
Serial No.: 09/728,038	§	
Confirmation No.: 2584	§	
	§	Examiner: Alvin J. Grant
Filed: December 1, 2000	§	
For: Apparatus and Method for Controlled Delivery of Slurry to a Region of a Polishing Device	§	

MAIL STOP APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
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CERTIFICATE OF MAILING
37 CFR 1.8
I hereby certify that this correspondence is being deposited on February 21, 2006, with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

February 21, 2006 — Date
Keith M. Tackett

Dear Sir:

APPEAL BRIEF

Applicants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 3723 dated September 22, 2005, finally rejecting claims 1-37. The final rejection of claims 1-37 is appealed. Although Applicant believes there are no fees due in connection with this filing beyond the attached fee sheet, the Commissioner is hereby authorized to charge any fees to Counsel's Deposit Account No. 20-0782/APPM/003778/KMT in order to make this Appeal Brief timely and acceptable.

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Real Party in Interest

The present application has been assigned to Applied Materials, Inc., 3050 Bowers Avenue, Santa Clara, California 95054.

Related Appeals and Interferences

Applicant asserts that no other appeals or interferences are known to the Applicant, the Applicant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-37 were pending in the application at the time of the filing of the Notice of Appeal. Claims 1-31 were originally presented in the application upon filing. Claims 32-37 were added during prosecution. Claims 1-37 are currently being appealed.

In an Office Action dated March 15, 2002, claims 1, 4-6, 8, 9, 11, 14-16, 18-20, 26-27 were rejected under 35 U.S.C §102(a) over U.S. Patent No. 5,690,540 (*Elliot et al*); claims 3 and 7 were rejected under 35 U.S.C. 103(a) over U.S. Patent No. 5,690,540 (*Elliot et al*); claims 2, 12, 13, 23, 24, 28, 30, and 31 were rejected under 35 U.S.C. 103(a) over U.S. Patent No. 5,690,540 (*Elliot et al*) in view of U.S. Patent No. 6,299,515 (*Beardsley et al*); and claims 7, 10, 21, 22, 25, and 29 were rejected under 35 U.S.C. 103(a) over U.S. Patent No. 5,690,540 (*Elliot et al*) in view of over U.S. Patent No. 6,299,515 (*Beardsley et al*), and in further view of U.S. Patent No. 6,332,860 (*Okamura et al*).

Applicant responded to the rejection of claims 1-31 and also submitted new claims 32-36 in the response dated June 13, 2002. Applicant then received a Final Office Action dated October 23, 2002. The rejections of claims 1-31 were maintained, and new claims 32-36 were rejected under 35 U.S.C §102(a) over U.S. Patent No. 5,690,540 (*Elliot et al*). Applicant filed a response to Final Office Action on January 23, 2003, which no claims were amended and new claim 37 was submitted for consideration. An Advisory Action was mailed on May 9, 2003 that indicated that the amendments would not be entered and the request for reconsideration had been considered and was considered by the Examiner to not place the application in condition for allowance.

A Notice of Abandonment was issued on May 21, 2003. The application was revived from abandonment on November 19, 2004, and a Request for Continued Examination was filed to enter new claim 37 into prosecution.

A Final Office Action was issued on September 22, 2005, maintaining rejection of claims 1-36 and rejecting claim 37 under 35 U.S.C §102(a) over U.S. Patent No. 5,690,540 (*Elliot et al*). Applicant filed a Notice of Appeal to that Final Office Action on December 20, 2005.

The pending claims are shown in the attached Claims Appendix.

Status of Amendments

No other claim amendments were presented after the final rejection, and the pending claims with any and all previous amendments are included in the Claims Appendix.

Summary of Claimed Subject Matter

Claimed embodiments of the invention provide apparatus for polishing a substrate which improves the distribution of slurry over the surface of a polishing pad and improves uniformity and planarity of the polishing process. (Page 4, lines 16-18). In one embodiment, the apparatus is adapted for incorporation into a chemical mechanical polishing system. (Page 4, lines 16-18)

In the embodiment of independent claim 1, an apparatus is provided comprising a semiconductor polishing device having a first surface defining at least two non-intersecting fluid retaining grooves at least a portion of which is oriented at an angle relative to a radial line originating at a center of the semiconductor polishing device. (Page 7, lines 26-31; Page 8, lines 10-15, Figure 3) The non-intersecting fluid retaining grooves are adapted to flow a fluid inwardly toward a center portion of the semiconductor polishing device. (Page 8, lines 5-24)

In the embodiment of claim 3 dependent on claim 1, the apparatus comprises a depth of at lest one of the non-intersecting fluid retaining grooves changes along a length of the at least one non-intersecting fluid retaining groove. (Page 11, lines 12-25, Figure 10)

In the embodiment of claim 7 dependent on claim 1, the apparatus comprises non-intersecting fluid retaining grooves selected from the group of arcuate grooves, linear grooves, and any combinations thereof. (Page 7, lines 26-31, Figure 3, Page 10, lines 6-14, Figure 7)

In the embodiment of independent claim 14, a substrate polishing pad is provided comprising a polishing surface on a first side of the substrate polishing pad and a mounting surface on a second side of the substrate polishing pad. (Page 11, line 29, to page 12, line 4, Figure 11) At least one of the polishing surface and the mounting surface has a plurality of non-intersecting fluid retaining grooves formed therein. (Page

7, lines 26-31) The grooves are disposed so that upon a given direction of movement of the substrate polishing pad a fluid disposed in the grooves is urged to flow from an outer portion toward a center portion of the substrate polishing pad. (Page 8, lines 5-24)

In the embodiment of independent claim 19, an apparatus is provided for polishing a substrate, comprising one or more rotatable platens, a motor coupled to the rotatable platens, one or more polishing heads rotatably mounted in facing relation to the rotatable platens, and a polishing pad disposed on each of the rotatable platens. (Page 6, lines 11-14, Figure 1; Page 6 line 30 to page 7, line 1, Figure 2) At least one of the rotatable platens and the polishing pads comprise a plurality of non-intersecting fluid retaining grooves formed on a first surface thereof. (Page 7, lines 26-31) At least a portion of the grooves are disposed at an angle to a radial line extending from a center of the first surface and are adapted to flow a fluid inwardly from an outer portion to a center portion of the first surface. (Page 8, lines 5-24)

In the embodiment of independent claim 28, a rotatable platen for a polishing system is provided. (Page 6 line 25 to page 7, line 1, Figure 2) The platen comprises a patterned pad mounting surface forming a plurality of non-intersecting fluid retaining grooves each having a portion oriented at an angle relative to a radial line originating at a center of the pad. (Page 7, lines 26-31; Page 8, lines 10-15, Figure 3) The portion adapted to flow a fluid inwardly from a perimeter portion to a center portion of the platen during rotation of the platen. (Page 8, lines 5-24)

In the embodiment of independent claim 32, an apparatus for a polishing system is provided, comprising a semiconductor polishing device having a first surface defining at least one non-intersecting fluid retaining groove at least a portion of which is oriented at an angle relative to a radial line originating at a center of the semiconductor polishing device. (Page 7, lines 26-31; Page 8, lines 10-15, Figure 3) The non-intersecting fluid retaining groove has a first portion and a second portion having a same direction of curvature and defining a tangent point to the radial line. (Page 9, lines 10-28, Figure 5)

The non-intersecting fluid retaining groove is adapted to flow a fluid inwardly toward a center portion of the semiconductor polishing device. (Page 8, lines 5-24)

In the embodiment of independent claim 32, an apparatus for polishing a substrate, comprising a rotatable platen, a motor coupled to the rotatable platen, a polishing head rotatably mounted in facing relation to the rotatable platen, and a polishing pad disposed on the rotatable platen. (Page 6, lines 11-14, Figure 1; Page 6, line 30, to page 7, line 1, Figure 2) A plurality of non-intersecting slurry retaining grooves are formed at an interface between the polishing pad and the rotatable platen. (Page 4, line 24, to page 5, line 1; Page 11, line 29, page 12, line 25, Figures 11 and 12) A first portion of the grooves are oriented to flow slurry inwardly from an outer region to an interior region at the interface between the polishing pad and the respective rotatable platens for a given direction of rotation of the platen. (Page 12, lines 16-22) A second portion of the grooves are oriented to flow slurry outwardly from a central region to the interior region at the interface between the polishing pad and the rotatable platen for the given direction of rotation of the platen. (Page 12, lines 16-22)

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1, 4-6, 8, 9, 11, 14-16, 18-20, 26-27, and 32-37 are anticipated under 35 U.S.C §102(a) over U.S. Patent No. 5,690,540 (*Elliot et al*).

2. Whether claims 3 and 17 are unpatentable over U.S. Patent No. 5,690,540 (*Elliot et al*).

3. Whether claims 2, 12, 13, 23, 24, 28, 30, and 31 are unpatentable over U.S. Patent No. 5,690,540 (*Elliot et al*) in view of U.S. Patent No. 6,299,515 (*Beardsley et al*).

4. Whether claims 7, 10, 21, 22, 25, and 29 are unpatentable over U.S. Patent No. 5,690,540 (*Elliot et al*) in view of U.S. Patent No. 6,299,515 (*Beardsley et al*), and in further view of U.S. Patent No. 6,332,860 (*Okamura et al*).

ARGUMENT

A. Anticipation of Claims 1, 4-6, 8, 9, 11, 14-16, 18-20, 26-27, and 32-37 over U.S. Patent No. 5,690,540 (*Elliot et al*)

Claims 1, 4, 5, 6, 8, 9, 11, 14, 15, 16, 18, 19, 20, 26, 27 and 32-36 stand rejected under 35 U.S.C. § 102(a) as being anticipated by *Elliott et al.*, U.S. 5,690,540 (hereinafter *Elliott*). Applicants have respectfully traversed the rejection based on the grounds that the invention does not teach, show, or suggest the invention as claimed.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

The Examiner states that *Elliott* discloses a semiconductor polishing device with one surface defining at least one non-intersecting fluid retaining groove, at least a portion of which is oriented at an angle relative to a radial line originating at its center, is adapted to flow a fluid inwardly toward a center portion of its surface, and is adapted to be used with a rotary polisher.

At least some of the rejected pending claims recite two or more non-intersecting fluid retaining grooves. (*See, e.g.*, claim 1.) Other claims recite a non-intersecting fluid retaining groove having a first portion and a second portion having a same direction of curvature and defining a tangent point to a radial line extending from a center of a semiconductor polishing device. (*See, e.g.*, claim 4.) An embodiment of the latter claim recitation is shown in Figure 5. In one aspect, the latter embodiment provides a higher degree of control of slurry distribution. Such an embodiment is in contrast to *Elliott* in which slurry can only be transported to the center of a polishing pad. (See, column 3, line 6-8.)

Further, at least some of the rejected pending claims recite a plurality of non-intersecting grooves. (*See, e.g.*, claim 14.) Where a plurality of grooves are disclosed by *Elliott*, such grooves are not non-intersecting. (*See* Figure 3.)

However, in his Final Office Action the Examiner states that the grooves of *Elliot* are non-intersecting. While the Examiner and the Applicants agree that the grooves of *Elliot* originate at a center 66, the Examiner suggests that the center 66 is not an intersection. Respectfully, Applicants submit that such a conclusion requires an interpretation of the term "intersecting" which is contrary to its ordinary meaning. *Websters Collegiate Dictionary* defines "intersect" as (1) to meet and cross at a point; and (2) to share a common area. By way of illustration, the common point at which two roads meet is referred to as a "four-way intersection". Therefore, the grooves of Elliot intersect one another at the center 66.

The Examiner further states, however, that non-intersecting grooves are well-known and that a number of relevant references have been cited. Applicants respectfully request that the references in support of the Examiner's statement be specifically pointed out so that the best available art can be considered and addressed by the Applicants.

Withdrawal of the rejection of claims is respectfully requested.

B. Obviousness of Claims 3 and 17 over U.S. Patent No. 5,690,540 (*Elliot et al*)

Claims 3 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Elliott et al.* The Examiner correctly states that *Elliott* does not disclose a groove having a varying slope. However, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the intention to modify the pad of *Elliott* to change the depth of the groove to increase or decrease to flow rate, hence the quantity, of the slurry. The Applicants have respectfully traversed the rejection.

Elliot provides definitive groove configuration limitations. In particular, Elliott discusses the effects of groove depth, width and pitch. (*See*, column 4, lines 20-31.) In the case of depth, the grooves disclosed in *Elliott* are substantially uniformly deep along their lengths. (*See*, Figure 2.) *Elliott* suggests that the depth of a groove may be

selected according to a desired flow slurry rate. However, because the groove configuration of *Elliott* is limited to providing slurry to a center of a polishing pad, *Elliott* does not contemplate varying a groove depth along its length. Therefore, *Elliott* does not teach, show or suggest a groove with a varying depth. For these reasons, a person skilled in the art would not be motivated by *Elliott* to use a groove with a varying depth. If the Examiner disagrees, the Applicants respectfully request that the Examiner provide supporting material for his position.

In response to the foregoing argument, the Examiner states that *Elliot* teaches that optimizing the specific configuration of the groove will depend upon experimental results. However, because grove slope is not taught, shown or suggested by *Elliot* as a parameter capable of being manipulated, it follows that it cannot be "optimized". Respectfully, the Examiner's interpretation of *Elliot's* statement gives such broad scope to self-serving language as to foreclose innovation in the face of even the most substance-less disclosure.

Withdrawal of the rejection of claims 3 and 17 is respectfully requested.

C. Obviousness of Claims 2, 12, 13, 23, 24, 28, 30, and 31 over U.S. Patent No. 5,690,540 (*Elliot et al*) in view of U.S. Patent No. 6,299,515 (*Beardsley et al*).

Claims 2, 12, 13, 23, 24, 28, 30 and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Elliott* in view of *Beardsley et al.*, U.S. 6,299,515 (hereinafter *Beardsley*). The Applicants respectfully traverse the rejection.

For the reasons discussed above, the rejection is obviated based on *Elliott* alone. *Beardsley* is directed to a patterned platen for transporting slurry. Thus, *Elliott* is exclusively directed to grooves in a polishing surface of a pad and *Beardsley* is exclusively directed to grooves in a platen. Further, *Beardsley* delivers slurry from the platen through the pad and onto the polishing surface of the pad. In contrast, *Elliott* delivers slurry directly onto the polishing surface of the pad. As a result, the slurry dispenser of *Beardsley* is suited only for slurry delivery to a platen and the slurry dispenser of *Elliott* is suited only for slurry delivery to a pad. Therefore, a person skilled

in the art would not be motivated to combine *Elliot* with *Beardsley* because any effort to do so would result in an inoperative device due to the incompatibility of slurry delivery devices. Therefore, the rejection is improper. M.P.E.P. §2143.01.

Withdrawal of the rejection of claims is respectfully requested.

D. Obviousness of Claim claims 7, 10, 21, 22, 25, and 29 are unpatentable over U.S. Patent No. 5,690,540 (*Elliot et al*)in view of U.S. Patent No. 6,299,515 (*Beardsley et al*), and in further view of U.S. Patent No. 6,332,860 (*Okamura et al*)

Claims 7, 10, 21, 22, 25 and 29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Elliott et al.* in view of *Beardsley et al.* and further in view of *Okamura et al.*, U.S. 6,332,830 (hereinafter *Okamura*).

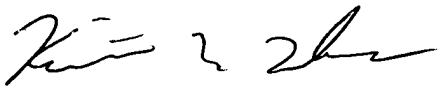
For the reasons discussed above, the rejection is obviated based on *Elliott* and *Beardsley* alone or in combination. *Okamura* is directed to a polishing apparatus including a turn table (2) disposed on a patterned surface of a turntable receiving member (3a). The grooves are not formed between a pad and platen, but between a turn table (2) and a turntable receiving member (3a). Further, the structure of the grooves accommodates the distribution of contact pressure, but does not allow for transfer of slurry to a desired region of the pad. Therefore, *Okamura* has no relevance to the pending claims and does not teach, show or suggest fluid-retaining grooves to transfer fluid to a desired region of a pad during polishing of a substrate.

Withdrawal of the rejection is respectfully requested.

CONCLUSION

For the reasons stated above, the Applicant respectfully submits that the rejection of claims 1, 4-6, 8, 9, 11, 14-16, 18-20, 26-27, and 32-37 under 35 U.S.C §102(a) and claims 2-3, 5, 7, 10, 12-13, 17, 21-25, and 28-31 under 35 U.S.C. 103(a) is improper. Reversal of the rejection to claims 1-37 is respectfully requested.

Respectfully submitted,



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CLAIMS APPENDIX

1. (Previously Presented) An apparatus, comprising a semiconductor polishing device having a first surface defining at least two non-intersecting fluid retaining grooves at least a portion of which is oriented at an angle relative to a radial line originating at a center of the semiconductor polishing device, wherein the non-intersecting fluid retaining grooves are adapted to flow a fluid inwardly toward a center portion of the semiconductor polishing device.

2. (Original) The apparatus of claim 1, wherein the semiconductor polishing device is one of a polishing pad and a platen.

3. (Previously Presented) The apparatus of claim 1, wherein a depth of at least one of the non-intersecting fluid retaining grooves changes along a length of the at least one non-intersecting fluid retaining groove.

4. (Previously Presented) The apparatus of claim 1, wherein at least one of the non-intersecting fluid retaining grooves has a first portion and a second portion having a same direction of curvature and defining a tangent point to the radial line.

5. (Previously Presented) The apparatus of claim 1, wherein the non-intersecting fluid retaining grooves are oriented in a direction of rotation moving at an increasing radius from a first end of the grooves to a second end of the grooves.

6. (Previously Presented) The apparatus of claim 1, wherein the non-intersecting fluid retaining grooves are oriented in a direction of rotation moving at an increasing radius along a length of the non-intersecting fluid retaining grooves.

7. (Previously Presented) The apparatus of claim 1, wherein the non-intersecting fluid retaining grooves are selected from arcuate grooves, linear grooves, and any combination thereof.

8. (Previously Presented) The apparatus of claim 1, wherein the non-intersecting fluid retaining grooves extend from the center portion of the semiconductor polishing device to an edge of the semiconductor polishing device and wherein no point of the non-intersecting fluid retaining groove is tangent to the radial line.

9. (Original) The apparatus of claim 1, wherein the semiconductor polishing device is adapted for use with a rotary polisher.

10. (Original) The apparatus of claim 1, wherein the semiconductor polishing device is adapted for use with a linear polisher.

11. (Original) The apparatus of claim 1, wherein the semiconductor polishing device is a polishing pad and the first surface is a polishing surface.

12. (Original) The apparatus of claim 1, wherein the semiconductor polishing device is a platen and the first surface is a polishing pad mounting surface.

13. (Original) The apparatus of claim 1, wherein the semiconductor polishing device is a platen and the first surface is a polishing pad mounting surface having a perforated pad disposed thereon, wherein a plurality of perforations formed in the perforated pad couple the non-intersecting fluid retaining groove with a polishing surface of the perforated pad.

14. (Original) A substrate polishing pad, comprising:

(a) a polishing surface on a first side of the substrate polishing pad; and

(b) a mounting surface on a second side of the substrate polishing pad;

wherein at least one of the polishing surface and the mounting surface has a plurality of non-intersecting fluid retaining grooves formed therein, wherein the grooves are disposed so that upon a given direction of movement of the substrate polishing pad a

fluid disposed in the grooves is urged to flow from an outer portion toward a center portion of the substrate polishing pad.

15. (Original) The substrate polishing pad of claim 14, wherein the one or more fluid retaining grooves extend from the center portion of the substrate polishing pad to an edge of the substrate polishing pad and wherein no point of the grooves is tangent to a radial line extending from a center to the substrate polishing pad.

16. (Original) The substrate polishing pad of claim 14, wherein the grooves are formed on the mounting surface and the substrate polishing pad comprises perforations extending between the polishing surface and the mounting surface.

17. (Original) The substrate polishing pad of claim 14, wherein the substrate polishing pad comprises polyurethane.

18. (Original) The substrate polishing pad of claim 14, wherein the substrate polishing pad is adapted for use with a rotary polisher.

19. (Original) An apparatus for polishing a substrate, comprising:

(a) one or more rotatable platens;

(b) a motor coupled to the rotatable platens;

(c) one or more polishing heads rotatably mounted in facing relation to the rotatable platens; and

(d) a polishing pad disposed on each of the rotatable platens,

wherein at least one of the rotatable platens and the polishing pads comprise a plurality of non-intersecting fluid retaining grooves formed on a first surface thereof and wherein at least a portion of the grooves are disposed at an angle to a radial line extending from a center of the first surface and are adapted to flow a fluid inwardly from an outer portion to a center portion of the first surface.

20. (Original) The apparatus of claim 19, wherein the plurality of non-intersecting fluid retaining grooves comprise a plurality of arcuate grooves extending from the center portion to the outer portion.

21. (Original) The apparatus of claim 19, wherein the plurality of non-intersecting fluid retaining grooves are selected from the group of arcuate grooves, linear grooves and any combination thereof.

22. (Original) The apparatus of claim 19, wherein the plurality of non-intersecting fluid retaining grooves is selected from the group of:

(a) arcuate grooves;

(b) linear grooves disposed in an angular relation to the radial line; and

(c) a combination of (a) and (b).

23. (Original) The apparatus of claim 19, wherein the first surface is a platen mounting surface of the polishing pad in mating abutment with a pad mounting surface of the platen and further comprising a plurality of holes formed through the polishing pad and coupling the plurality of non-intersecting fluid retaining grooves with a polishing surface of the polishing pad.

24. (Original) The apparatus of claim 19, wherein the first surface is a pad mounting surface of the platen in mating abutment with a platen mounting surface of the polishing pad and further comprising a plurality of holes formed through the polishing pad and coupling the plurality of non-intersecting fluid retaining grooves with a polishing surface of the polishing pad.

25. (Original) The apparatus of claim 19, wherein the plurality of non-intersecting fluid retaining grooves is selected from the group of:

(a) arcuate grooves;

(b) linear grooves disposed in non-parallel relation to a radial line extending from a center of the polishing pad or platen; and

(c) a combination of (a) and (b).

26. (Original) The apparatus of claim 19, wherein the plurality of non-intersecting fluid retaining grooves comprise a first portion oriented at a first angle greater than 0 degrees and less than 90 degrees relative to the radial line and a second portion oriented at a second angle greater than 90 degrees and less than 180 degrees relative to the radial line.

27. (Original) The apparatus of claim 26, wherein the first and second angles vary along their respective lengths.

28. (Original) A rotatable platen for a polishing system, comprising a patterned pad mounting surface forming a plurality of non-intersecting fluid retaining grooves each having a portion oriented at an angle relative to a radial line originating at a center of the pad, the portion adapted to flow a fluid inwardly from a perimeter portion to a center portion of the platen during rotation of the platen.

29. (Original) The rotatable platen of claim 28, wherein the plurality of non-intersecting fluid retaining grooves is selected from the group of:

(a) arcuate grooves;

(b) linear grooves disposed in angular relation to the radial line; and

(c) a combination of (a) and (b).

30. (Original) The rotatable platen of claim 28, wherein a polishing pad is mounted on the pad mounting surface so that the polishing pad and the plurality of non-intersecting fluid retaining grooves form fluid passageways between the polishing pad and the platen.

31. (Original) The rotatable platen of claim 28, wherein the rotatable platen is part of a chemical mechanical polishing system.

32. (Previously Presented) An apparatus, comprising a semiconductor polishing device having a first surface defining at least one non-intersecting fluid retaining groove at least a portion of which is oriented at an angle relative to a radial line originating at a center of the semiconductor polishing device, and wherein the non-intersecting fluid retaining groove has a first portion and a second portion having a same direction of curvature and defining a tangent point to the radial line and wherein the non-intersecting fluid retaining groove is adapted to flow a fluid inwardly toward a center portion of the semiconductor polishing device.

33. (Previously Presented) The apparatus of claim 32, wherein the semiconductor polishing device is one of a polishing pad and a platen.

34. (Previously Presented) The apparatus of claim 33, wherein a depth of the non-intersecting fluid retaining groove changes along a length of the non-intersecting fluid retaining groove.

35. (Previously Presented) The substrate polishing pad of claim 14, wherein at least one of the one or more fluid retaining grooves has a first portion and a second portion having a same direction of curvature and defining a tangent point to a radial line extending from a center to the substrate polishing pad.

36. (Previously Presented) The substrate polishing pad of claim 14, wherein at least one of the one or more fluid retaining grooves has a first portion and a second portion having a same direction of curvature and defining a tangent point to a radial line extending from a center to the substrate polishing pad; and wherein at least one other of the one or more fluid retaining grooves extend from the center portion of the substrate polishing pad to an edge of the substrate polishing pad and wherein no point of the at least one other of the one or more fluid retaining grooves is tangent to the radial line.

37. (Previously Presented) An apparatus for polishing a substrate, comprising:

(a) a rotatable platen;

(b) a motor coupled to the rotatable platen;

(c) a polishing head rotatably mounted in facing relation to the rotatable platen; and

(d) a polishing pad disposed on the rotatable platen, wherein a plurality of non-intersecting slurry retaining grooves are formed at an interface between the polishing pad and the rotatable platen and wherein a first portion of the grooves are oriented to flow slurry inwardly from an outer region to an interior region at the interface between the polishing pad and the respective rotatable platens for a given direction of rotation of the platen, and wherein a second portion of the grooves are oriented to flow slurry outwardly from a central region to the interior region at the interface between the polishing pad and the rotatable platen for the given direction of rotation of the platen.

EVIDENCE APPENDIX

No evidence is hereby submitted by Applicant.

RELATED PROCEEDINGS APPENDIX

No copies of decisions rendered by a court or the Board in the related appeal or interference listed on page 4 of this Brief are included as there have been no decisions by the court or the Board in the related appeal or interference listed on page 4 of this Brief.

438838_1

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FEE TRANSMITTAL for FY 2006

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($) 500.00

Complete If Known	
Application Number	09/728,038
Filing Date	December 1, 2000
First Named Inventor	Hung Chih Chen, et al.
Examiner Name	Alvin J. Grant
Art Unit	3723
Attorney Docket No.	APPM/003778.Y1/PPC/CMP/CKIM

METHOD OF PAYMENT (check all that apply)

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☒ Deposit Account Deposit Account Number: 50-1074/APPM/003778.Y1 Deposit Account Name: Applied Materials, Inc.

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES	Small Entity	SEARCH FEES	Small Entity	EXAMINATION FEES	Small Entity	
Application Type	Fee ($)	Fee($)	Fee($)	Fee($)	Fee($)	Fee($)	Fees Paid ($)
Utility	300	150	500	250	200	100	____
Design	200	100	100	50	130	65	____
Plant	200	100	300	150	160	80	____
Reissue	300	150	500	250	600	300	____
Provisional	200	100	0	0	0	0	____

2. EXCESS CLAIM FEES

Fee Description	Small Entity Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee($)	Fee Paid ($)
____ -20 or HP=	____	x ____	= ____

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee($)	Fee Paid ($)
____ - 3 or HP=	____	x ____	= ____

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims Fee ($)	Fee Paid ($)
____	____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
____ - 100 =	____	/ 50 = ____ (round up to a whole number) x		= ____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	____
Other (e.g., late filing surcharge) : Appeal Brief	$500.00

SUBMITTED BY

Signature	Robert W. Mulcahy	Registration No. (Attorney/Agent) 25,436	Telephone 713-623-4844
Name (Print/Type)	ROBERT W. MULCAHY		Date 02/21/2006

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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